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THREATENED AND ENDANGERED PLANTS

OF THE WILLOW CREEK DRAINAGE

VOLUME II
DATA FORMS
PHOTOS

Submitted to:

Bureau of Land Management

Vernal, Utah

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by:

Meiiji Resource Consultants

1979

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Aquilegia barnebyi

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POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. AQBAX-UN001

Date. 7 June 1979

Species *Aquilegia barnebyi* Munz Examiner(s) LMS & JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Buck Canyon

USGS Quad Agency Draw NE

Legal Description: T 12S R 21E Sec. 35 ¼ NE ¼ SW

Elev. 1760 - 1770 m Slope 65° - 85° Exposure North

Veg. Type & Associated Spp. Desert Shrub/Juniper - *Eriogonum corymbosum, Ribes aureum, Artemisia tridentata, Chrysothamnus nauseosus, Agropyron spicatum, Phlox longifolia, Physaria grahamii.*

Geologic Formation Parachute Ck. member of Green River Fm. Parent Rock shale

Soil Texture shale - some clay between layers pH

No. of Individuals 183 (1-50 exact no,; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling 40, Young 30, Mature 111, Senescent 2

Reproduction methods (outcrossing, selfing, etc.) flowers outcrossed

Pollinators if any

Dispersal mechanisms

Phenological condition flowering: early anthesis to early fruit

Spatial size of population 25 m x 10 m

Viability of population (increasing, stable, decreasing) stable to decreasing

Threats to survival (present & potential) About 30 m south of road, above wash. Necessity of wash for drainage may protect population from encroachment due to road widening.

Other Notes:

AQBAX-UN001

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. AQBAX -UN002

Date. 7 June 1979

Species *Aquilegia barnebyi* Munz Examiner(s) LMS & JSS

Location: BLM District private land State Utah County Uintah

Locality Name Santio Crossing

USGS Quad Agency Draw NE

Legal Description: T 12 S R 21 E Sec. ¼SW ¼SE(2); ¼NW ¼SE; ¼SE ¼SW ¼ ¼

Elev. 1700 m Slope 25° - 85° Exposure N & NNE

Veg. Type & Associated Spp. Mesic Shrub - *Ribes aureum, Rhus trilobata, Clematis ligusticifolia, (Phragmites australis, Chrycothamnus nauseosus* at base of cliff)

Geologic Formation Parachute Ck. of Green River Parent Rock shale & marlstone

Soil Texture shale and some clay - so "soil" pH

No. of Individuals est. 560 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling 250, Young 9, Mature 300, Senescent not apparent

Reproduction methods (outcrossing, selfing, etc.) flowers outcrossed

Pollinators if any

Dispersal mechanisms

Phenological condition flowering: early anthesis and bud

Spatial size of population

Viability of population (increasing, stable, decreasing) stable - numerous seedlings

Threats to survival (present & potential)

Other Notes:

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. AQBAX-UN003

Date. 11 June 1979

Species *Aquilegia barnebyi* Munz Examiner(s) JSS, KMM, JSP

Location: BLM District Vernal & private State Utah County Uintah

Locality Name Klondike Canyon

USGS Quad Bates Knolls and (Cooper Canyon)

Legal Description: T 13 S R 22 E Sec. ¼ ¼

Elev. 1945 m Slope on short verticle walls Exposure North

Veg. Type & Associated Spp. Ravine bounded by shrub-grass in Juniper-Mt. Mahogany, *Eriogonum corymbosum, Cercocarpus montanus, Rhus trilobata, Xanthocephalum sarothrae, Hymenopappus filifolius, Oryzopsis hymenoides, Agropyron spicatum, Eriogonum ephedroides.*

Geologic Formation Parachute and Douglas Ck. member of Green River Parent Rock shale

Soil Texture pH

No. of Individuals est. greater than 500 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: 114 counted in upper canyon on BLM land. Isolated groups in ravines (Sec. 19) and along wall in Klondike Canyon.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. AQBAX- UN004

Date. 11 May 1979

Species *Aquilegia barnebyi* Munz Examiner(s) LMS, JLE, JSS, KMM

Location: BLM District state land State Utah County Uintah

Locality Name Cooper Canyon

USGS Quad Cooper Canyon

Legal Description: T 13 S R 23 E Sec. 12 ¼ NE ¼ NE

Elev. 1825m Slope greater than 50% Exposure north

Veg. Type & Associated Spp. Mesic Shrub - *Symphoricarpos vaccinoides, Eriogonum* sp. *Chrysothamnus nauseosus*

Geologic Formation Green River-Parachute Ck. member Parent Rock shale

Soil Texture pH

No. of Individuals (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition vegetative

Spatial size of population less then 200 m along road by less than 50 m

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) state land available to oil shale exploration

Other Notes:

AQBAX-UN003

AQBAX-UN004

Cryptantha barnebyi

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CRBA6-UN001

Date. 18 May 1979

Species *Cyrptantha barnebyi* Johnst Examiner(s) JSP

Location: BLM District Vernal State Utah County Uintah

Locality Name Jct. Buck Canyon and Seep Ridge Road

USGS Quad Agency Draw NE

Legal Description: T 12 S R 22 E Sec. 31 ¼ NE of ¼NW ¼ NW

Elev. 1908 m Slope 0 - 2 % Exposure

Veg. Type & Associated Spp. Pinyon - Juniper/Desert Shrub - *Allium textile, Artemisia pygmaea, Bolophyta ligulata, Cercocarpus montanus, Cryptantha barnebyi, Ephedra viridis, Eriogonum ephedroides, Forsellesia meionandra, Haplopappus nuttallii, Mirabilis alipes,* cont.

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH

No. of Individuals 75 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition peak flowering

Spatial size of population less than an acre; abundant in area

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) off road vehicle tracks; grazing

Other Notes: JSP: soil samples and transect data

Species continued: *Hymenoxys acaulis, Juniperus osteosperma, Pinus edulis, Poa secunda, Chamaechaenactis scaposa.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CRBA6-UN002

Date. 22 May 1979

Species *Cryptantha barnebyi* Johnst Examiner(s) JSP

Location: BLM District Vernal, private & state State Utah County Uintah

Locality Name Bates Knolls - McCoy Reservoir #1

USGS Quad Bates Knolls

Legal Description: T 12 S R R 22 E Sec. 33 - 35 T13S R22E Sec. 2,3,10,11

Elev. 1890 - 1960m Slope 0 - 4% at A Exposure

Veg. Type & Associated Spp. Desert Shrub/Pinyon - Juniper - *Allium textile, Artemisia pygmaea, A. tridentata, Artiplex canescens, Bolophyta ligulata, Cirsium pulchellum, Cryptantha humilis, C. affinis, Erigeron pumilis, Eriogonum corymbosum, E. ephedroides,* cont.

Geologic Formation Evacuation Ck. of Green River Parent Rock shale

Soil Texture pH

No. of Individuals 12,300 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition vegetative

Spatial size of population disjunct populations over several sections

Viability of population (increasing, stable, decreasing) varies among sites

Threats to survival (present & potential) potential oil shale activity; grazing; landstrip and several roads in area

Other Notes: population center at A; soil sample and transect data collected (JSP); a few sites had many dead plants - unknown cause.

Species continued: *Gilia stenothyrsa, Haplopappus nuttallii, H. acaulis, Hiliaria jamesii, Lesquerella subumbellata, Oryzopsis hymenoides, Penstemon grahamii, P. mucronatus, Phlox longifolia, Poa secunda, Sphaeralcea coccinea, Chrysothamnus nauseosus, Oenothera lavandulaefol Astragalus convallarius,* cont. on back

Species continued: *Eriastrum diffusum, Townsendia mensana, Stephanomeria exigua, Hackelia micrantha, Cymopterus fendleri, Chorispora tenella, Oxytropis jonesii, Chamaechaenactis scaposa, Arenaria eastwoodiae, Hymenoxys acaulis, Cercocarpus montanus.*

CRAB6-UN001

CRAB6-UN002

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CRBA6-UN003

Date. 29 May 1979

Species *Cryptantha barnebyi* Johnst. Examiner(s) JSP

Location: BLM District Vernal State Utah County Uintah

Locality Name Sunday School Canyon

USGS Quad Bates Knolls

Legal Description: T 13 S R 22 E Sec. 22 ¼SE ¼NE, ¼NW ¼SE, ¼SE ¼SE 27 ¼NE ¼SE

Elev. 1950 - 1985m Slope 45% at D Exposure all

Veg. Type & Associated Spp. Pinyon - Juniper - *Agropyron trachycaulum, A. inerme, Allium textile, Arabis* sp., *Arenaria eastwoodiae, Artemisia frigida, A. tridentata, Bouteloua gracilis, Calochortus nuttallii, Chamaechaenactis scaposa, Cryptantha fendleri, Cymopterus* cont.

Geologic Formation Parachute Ck. of Green River Parent Rock shale

Soil Texture clayish pH

No. of Individuals est. 200 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling _____, Young _____, Mature _____, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

_____ Pollinators if any _____

Dispersal mechanisms _____

Phenological condition vegetative

Spatial size of population each site less than one acre

Viability of population (increasing, stable, decreasing) _____

Threats to survival (present & potential) gas drilling and ranch near two sites.

Other Notes: JSP: vegetation transect data, soil samples and plant tagging at Site D; 128 plants at sites in Sec. 22.

Species continued: *purpureus, Erigeron pumilis, Eriogonum corymbosum, Euphorbia fendleri, E. robusta, Gutierrezia sarothrae, Forsellesia meionandra, Haplopappus nuttallii, Hilaria jamesii, Hymenoxs acaulis, Lesquerella subumbellata, Oenothera flava, Orthocarpus tolmei,*

cont. on back

Species continued: *Penstemon humilis, Phlox longifolia, Physaria acutifolia, Poa secunda, Sphaeralcea coccinea.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CRAB6-UN004

Date. 13 June 197

Species *Cryptantha barnebyi* Johnst Examiner(s) JSP

Location: BLM District Vernal & private State Utah County Uintah

Locality Name Klondike and Reservoir Canyons

USGS Quad Bates Knolls and (Cooper Canyon)

Legal Description: T 13 S R 23 E Sec. 7, 17-20 ¼ ¼

Elev. 1860 - 1910m Slope 0 - 45% Exposure all

Veg. Type & Associated Spp. Desert Shrub - *Abronia fragrans, Agropyron* sp., *Allium textile, Arenaria eastwoodiae, Artemisia tridentata, Atriplex canescens, Bolophyta ligulata, Bromus tectorum, Calochortus nuttallii, Chamaechaenactis scaposa, Cirsium pulchellum,* cont.

Geologic Formation Parachute Ck. of Green River Parent Rock shale

Soil Texture pH

No. of Individuals 110,000 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population total area less than a square mile

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) Texaco owns much of the area

Other Notes: JSP: vegetation transect data, plant and soil samples taken.

Species continued: *Cymopterus purpureus, Erigeron pumilis, Eriogonum ephedroides, Euphorbia fendleri, E. robusta, Haplopappus nuttallii, Hilaria Jamesii, Hymenoxys acaulis, Lesquerella subumbellata, Mentzelia humilis, Oryzopsis hymenoides, Opuntia polycantha Penstemon* sp., cont. on back.

Species continued: *Phlox longifolia, Schoencrambe linifolia, Sphaeralcea coccinea, Tetradymia spinosa, Chyrsothamnus nauseosus, Astragalus chamaeleuce, Oenothera lavandulaefolia.*

CRAB6-UN003 PEGR6-UN005

CRAB6-UN004

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CRAB6-UN005

Date. 20 May 1979

Species *Cryptantha barnebyi* Johnst Examiner(s) JSP

Location: BLM District Vernal State Utah County Uintah

Locality Name Bitter Creek

USGS Quad Cooper Canyon

Legal Description: T 12 S R 23 E Sec. 28 ¼ NW ¼ SW

Elev. 1720 m Slope 0 - 12% Exposure east

Veg. Type & Associated Spp. Desert Shrub - *Penstemon humilis, P. strictus, Foresellesia meionandra, Yucca harrimaniae, Hymenoxys acaulis, Cirsium pulchellum, Happlopappus nuttallii, Chamaechaenactis scaposa, Calochortus nuttallii, Arenaria eastwoodiae, Euphorbia fendleri, Eriogonum corymblsum, Brickellia oblongifolia,* continued below

Geologic Formation Parachute Ck. of Green River Parent Rock shale

Soil Texture pH

No. of Individuals 1200 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition vegetative

Spatial size of population 4 distinct sites, less than 1 acre each

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) road passes through population

Other Notes: JSP: vegetation transect data and soil sample taken

Species continued: *Allium textile, Abronia fragrans, Hilaria jamesii, Oryzopsis hymenoides, Cymopterus purpureus, Artemisia tridentata, Erigeron pumilis, Oenothera flava, Mentzelia humilus, Artiplex canescens, Happlopappus acaulis, Pinus edulis, Bromus tectorum, Oenothera caespitosa, Hymenopappus filifolia, Poa secunda, Phlox longifolia.*

CRAB6-UN005

Cryptantha grahamii

CRGR4 Habitat

CRGR4 Habitat

Cymopterus duchesnensis

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. CYDU-UN001

Date. 10 June 1979

Species *Cymopterus duchesnensis* M.E. Jones Examiner(s) JSS, LMS

Location: BLM District Vernal State Utah County Uintah

Locality Name Squaw Crossing

USGS Quad Big Pack Mtn. NW

Legal Description: T 10 S R 20 E Sec. 4 5 8 9 jct. ¼ ¼

Elev. 1460m Slope Exposure

Veg. Type & Associated Spp. Salt-Desert Shrub -- *Atriplex confertifolia, Eriogonum corymbosum, E. inflatum, Stenogonum salsuginosum, E. cernuum, Kochia americana, Halogeton glomeratus.*

Geologic Formation Uinta Parent Rock red mudstone

Soil Texture clayey pH

No. of Individuals (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) Gas well in area; other oil and gas exploration in vicinity.

Other Notes:

Eriogonum intermontanum

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ERIN-UN001

Date. 25 June 1979

Species *Eriogonum intermontanum* Reveal Examiner(s) KMM, JSP

Location: BLM District Vernal State Utah County Uintah

Locality Name East Squaw Canyon

USGS Quad Flat Rock Mesa

Legal Description: T 14 S R 20 E Sec. 15 ¼ SW ¼ NE

Elev. 2070m Slope less than 15% Exposure N,E,S

Veg. Type & Associated Spp. Pinyon-Juniper Woodland/Desert Shrub - *Brickelia oblongifolia, Hymenopappus filifolius, Townsendia mensana, Pinus edulis, Juniperus osteosperma.*

Geologic Formation Parachute Creek of Green River Parent Rock shale

Soil Texture pH

No. of Individuals common (1-50 exact no,; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population disjunct populations of less than one acre

Viability of population (increasing, stable, decreasing) appears stable

Threats to survival (present & potential) isolated area; no roads in vicinity.

Other Notes: Species was unknown when collected. Population was not followed in the drainage -- any more hills of likely habitat to the north and south. Plants are on lobes of shale jutting into sage areas. Hills of P-J to east and west.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ERINX-UN002

Date. 1 Sept. 1979

Species *Eriogonum intermontanum* Reveal Examiner(s) LMS, JSS (3806)

Location: BLM District Vernal State Utah County Uintah

Locality Name Pine Springs Canyon

USGS Quad Pine Springs Canyon

Legal Description: T 14 S R 22 E Sec. 25 ¼ SW ¼ NW

Elev. 2195 m Slope shallow Exposure

Veg. Type & Associated Spp. Coniferous Forest - *Pinus ponderosa, P. edulis, Juniperus osteosperma, J. scopulorum.*

Geologic Formation Parachute Ck. of Green River Parent Rock shale

Soil Texture pH

No. of Individuals 30 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population widely scattered

Viability of population (increasing, stable, decreasing) spreading in disturbed area

Threats to survival (present & potential)

Other Notes: near cabin; disturbed area

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ERIINX-UN003

Date. 2 Sept. 1979

Species *Eriogonum intermontanum* Reveal Examiner(s) LMS, JSS, (3819)

Location: BLM District Vernal State Utah County Uintah

Locality Name Seep Ridge Road - Hideout Canyon

USGS Quad Seep Canyon

Legal Description: T 14 S R 23 E Sec. 32 ¼ NW ¼ NW

Elev. 2230 m Slope shallow Exposure

Veg. Type & Associated Spp. Pinyon - Juniper/Desert Shrub - *Pinus edulis, Juniperus osteosperma, Artemisia nova, Chrysothamnus depressus; Bouteloua gracilis.*

Geologic Formation Parachute Ck. of Green River Parent Rock shale

Soil Texture pH

No. of Individuals (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population thick clumps near road; difficult to estimate extent of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: dense sagebrush area; seems to increase in overgrazed areas further south.

Glaucocarpum suffrutescens

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN001

Date. 13 July 1979
14, 16, 20 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins

Examiner(s) JCS, LMS, KMM, JLE, RJK, AMI

Location: BLM District Vernal State Utah County Uintah

Locality Name Little Pack Mountain

USGS Quad Agency Draw NW

Legal Description: T 12S R 20E Sec. 34 ¼ NW,SW and Sec. 27 ¼ SW

Elev. Slope Exposure all (see below)

Veg. Type & Associated Spp. Pinyon - Juniper -*Cercocarpus montanus, Pinus edulis, Juniperus osteosperma, Artemisia tridentata* var. *tridentata, A. pygmaea, Ephedra viridis, Elymus salina, Forsellesia meionandra, Stanleya pinnata, Yucca harrimaniae, Mirabilis alipes* cont

Geologic Formation Evacuation Creek of Green River near contact with Uinta (no interfingering). Parent Rock grey-white shale

Soil Texture pH 7.4

No. of Individuals 450 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling 4, Young 50%, Mature 40%, Senescent 10%

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition many flowering, others in bud, few only vegetative

Spatial size of population density varies -West side: low density but evenly distributed; north & east: disjunct high density.

Viability of population (increasing, stable, decreasing) Many young plants. group of 4 seedlings at base of mature plant in July.

Threats to survival (present & potential) Jeep road along east side of population.

Other Notes: A third of plants are north of BLM land. More mature plants noted at lesser elevation and slope (40%). Site A: 50 plants; more individuals, esp. young noted on north facing slope. Site B: 30 plants. Site C: 75 plants, Site D: 6, Site E: 10. Population probably continues south. On west side, platns "ring" hills.

Species Continued: *Chrysothamnus nauseosus, Cryptantha grahamii, C. flavoculata, C. humilis,*

(cont. on back)

Species Continued: *Atriplex confertifolia, Bolophyta ligulatum, Chamaechaenactis scaposa, Chrysothamnus viscidiflorus, Physaria acutifolia, Penstemon osterhoutii, Phlox longifolia.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN002

Date. 20 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) KMM, RJK , AMH

Location: BLM District Vernal State Utah County Uintah

Locality Name Johnson Draw west of Little Pack Mountain

USGS Quad Agency Draw NW

Legal Description: T 12S R 20E Sec. 33 ¼ SW,NW,NE ¼

Elev. 1850 - 1900m Slope 0 - 30% Exposure all

Veg. Type & Associated Spp. Juniper/Desert Shrub - *Juniperus osteosperma, Cercocarpus montanus, Forsellesia meionandra, Yucca harrimaniae, Agropyron smithii, Penstemon mucronatus, Cryptantha grahamii, Tetradymia* sp., *Eriogonum ephedroides, Opuntia* sp., *Cryptantha gramahii.*

Geologic Formation Evacuation Creek of Green River Parent Rock shale, clast litter (5cm)

Soil Texture clayish pH 7.6

No. of Individuals 100 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: ~~Seedling~~ Very Small 20%, Young 50%, Mature 30%, Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any small butterfly - white with dark spots.

Dispersal mechanisms

Phenological condition flowering

Spatial size of population 2 - 10 plants distributed on approximately 12 knolls.
Site A: 30 plants

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes:

GLSU-UN001

GLSU-UN002

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN003

Date. 28 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) LMS

Location: BLM District Vernal State Utah County Uintah

Locality Name Green Canyon Road near Johnson and Agency Draw

USGS Quad Agency Draw NW

Legal Description: T 13S R 20E Sec. 15 ¼ ¼ NW

Elev. 1950m Slope Exposure

Veg. Type & Associated Spp. Pinyon - Juniper -*Pinus edulis, Juniperus osteosperma, Cercocarpus montanus, Forsellesia meionandra, Mirabilis alipes* *Penstemon mucronatus* *Yucca harrimaniae, Artemisia pygmaea, Cryptantha grahamii, C. rollinsii, Bolophyta ligulata* , cont.

Geologic Formation Evacuation Creek of Green River Parent Rock yellow-brown bricks over shale.

Soil Texture clay pH

No. of Individuals 70 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: ~~Seedling~~ Very Young 12, Young 20, Mature 32, Senescent 6

Reproduction methods (outcrossing, selfing, etc.) appears to be outcrossed

Pollinators if any

Dispersal mechanisms

Phenological condition various stages: bud, flower, seed

Spatial size of population restricted to barren tongues from Little Pack Mountain

Viability of population (increasing, stable, decreasing) stable; good reproduction & seed set

Threats to survival (present & potential) Close to road - do not extend more than 75m up the hill. Activity from road could affect the population; oil leases in the area.

Other Notes: Some specimens in litter and shade of Junipers. Evidence of leaf tip browsing on some specimens - insect damage, but not extensive.

Species Continued: *Eriogonum ephedroides, E. corymbosum, Erigeron pulcherrimus, Tertradymia spinosa, Phlox longifolia, Ceratoides lanata, Townsendia mensana.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN004

Date. 13 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) KMM, LMS, JSS

Location: BLM District Private Land State Utah County Uintah

Locality Name NW to W of Little Pack - roadsides

USGS Quad Agency Draw NW

Legal Description: T 12S R 20E Sec. 27-29,32 ¼ ¼

Elev. approx. 1825m Slope Exposure various

Veg. Type & Associated Spp. Pinyon - Juniper/Desert Shrub

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH

No. of Individuals (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: roadside locations noted; neither spatial nor numerical size of populations determined.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU - UN005

Date. 12,13May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) KMM, LMS, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Johnson Draw, SW side of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 12S R 20E Sec. 20 ¼ SE ¼

Elev. 1780 - 1790 Slope less than 4% Exposure south

Veg. Type & Associated Spp. Juniper/Desert Shrub - *Juniperus osteosperma, Artemisia nova, Yucca harrimaniae, Townsendia mensana, Bolophyta ligulata , Hymenopappus filifolius, Forsellesia meionandra.*

Geologic Formation Evacuation Creek member of Green River Parent Rock shale with sandstone block litter (3 x 8cm)

Soil Texture clay pH 7.4

No. of Individuals 18 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling 0, Young 6, Mature 11, Senescent 1

Reproduction methods (outcrossing, selfing, etc.) pollinator observed - outcross

Pollinators if any

Dispersal mechanisms

Phenological condition flowering and in bud -

Spatial size of population 3 - 6 plants per location; up to several meters apart.

Viability of population (increasing, stable, decreasing) appears stable

Threats to survival (present & potential) bulldozer track within 50 meters to one site; two roads bordering southernmost site.

Other Notes:

GLSU-UN003

GLSU-UN005

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN006

Date. 12-13 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) KMM, JSS, LMS

Location: BLM District Vernal State Utah County Uintah

Locality Name Johnson Draw, SW side of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 12S R 20E Sec. 7,8,17,18 ¼ ¼

Elev. 1765 - 1800m Slope less than 5% Exposure north, flat, west

Veg. Type & Associated Spp. Juniper/Desert Shrub - *Yucca harrimaniae, Forsellesia meionandra, Artemisia pygmaea, A. nova, Bolophyta ligulata, Crytantha grahamii, Mirabilis alipes Phlox* sp., *Eriogonum batemanii, Brickellia oblongifolia, Elymus salinus, Atriplex* cont

Geologic Formation Evacuation Creek of Green River Parent Rock fine white shale with orang brick litter.

Soil Texture clay pH 7.4

No. of Individuals 90 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling _____, Young 30% Mature 70%, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

_____ Pollinators if any _____

Dispersal mechanisms _____

Phenological condition mostly flowering, some in bud

Spatial size of population see notes

Viability of population (increasing, stable, decreasing) _____

Threats to survival (present & potential) old road just west of population

Other Notes: density variable - 7 knolls with 1 to 41 individuals. Juniper very scattered, more than 50m apart.

Species Continued: *confertifolia, Penstemon mucronatus* scattered *Juniperus osteosperma.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. GLSU-UN007

Date. 10,16 May 1979

Species *Glaucocarpum suffrutescens* R.C. Rollins Examiner(s) KMM, JSS, LMS

Location: BLM District Uintah & Ouray Indian Res. State Utah County Uintah

Locality Name Alger Draw, West Big Pack

USGS Quad Big Pack Mountain

Legal Description: T 11S R 20E Sec. 36 ¼ SW ¼ SE
T 12S R 20E Sec. 1 ¼ NE ¼ SE

Elev. 1700 and 1765m Slope 45% Exposure north, west, south

Veg. Type & Associated Spp. Desert Shrub - *Hymenopappus filifolius, Grayia spinosa, Forsellesia meionandra, Mirabilis alipes, Cryptantha grahamii, Eriogonum ephedroides.*

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH

No. of Individuals est. 20 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young few , Mature X , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population 13 on Alger Draw Knoll, 7 on West Big Pack knoll

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes:

GLSU-UN006

GLSU-UN007

Penstemon grahamii

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN001

Date. 15, 17 21,25 May 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JSS, RJK, AMH

Location: BLM District Vernal & State land State Utah County Uintah

Locality Name Jct. Buck Canyon and Seep Ridge Road

USGS Quad Agency Draw NE, (Bates Knolls)

Legal Description: T 12S R 21E Sec. 25,30,31,36 ¼

Elev. 1860 - 1915m Slope 0 - 30% Exposure all

Veg. Type & Associated Spp. Juniper/Desert Shrub - *Juniperus osterosperma, Cercocarpus montanus, Hymenoxys acaulis, Brickellia oblongifolia, Lesquerella subumbalatum, Cryptantha grahamii, C. barnebyi, Artiplex confertifolia, Stanleya pinnata, Artemesia pygmaea,* cont.

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH 7.2 - 7.4

No. of Individuals est. 300 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , ~~Young~~ Rosette 70% , ~~Mature~~ Flowering 30% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any bee

Dispersal mechanisms

Phenological condition vegetative, in bud, flowering (usually only few florets)

Spatial size of population highest density within ¼ mile north and south of Buck Canyon Road
Site A: 90 Site B: 80 Site C: 50 Site D: 35

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) exploration bladed "road" into area north of Buck C.; motor vehicle and cattle tracks SW of jct.; 2 major roads cut through population.

Other Notes: Most plants in loose shale beneath white shale ledges. Numbers are estimates - each rosette originally counted as an individual plant; counts reduced by 1/3.

Species continued: *meionandra, Yucca harrimaniae, Chamaechaenactis scaposa, Bolophyta ligulatam, Eriogonum ephedroides.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR-UN002

Date. 26 May 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Seep Ridge Road - BM6430

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 5 ¼ NW ¼ SE

Elev. 1950m Slope less than 10% Exposure all

Veg. Type & Associated Spp. Juniper - *Juniperus osteosperma, Forselesia meionandra, Bolophyta ligulata, Cercocarpus montanus, Artemisia pygmaea, Haplopappus armerioides, Cruptantha grahamii, Lesquerella subumbellata, Chamaechaenactis scaposa, Yucca Harrimaniae*, cont

Geologic Formation Evacuation Creek of Green River Parent Rock shale; with some orange clast litter (2 x 15 cm)

Soil Texture clay pH 7.4

No. of Individuals 85 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling _____, Rosette Young 56, Flowering ~~Mature~~ 29, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition flowering

Spatial size of population knoll 70m long; plants in loose shale below edge of hill

Viability of population (increasing, stable, decreasing) relatively good flower production

Threats to survival (present & potential) population near main road and jeep trail

Other Notes:

Species continued: *Mirabilis alipes*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UNQ03

Date. 20 June 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JP

Location: BLM District Vernal State Utah County Uintah

Locality Name Sunday School - Seep Ridge Road

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 18 (8) ¼ SE ¼ NE

Elev. 1865m Slope 0 - 20% Exposure south

Veg. Type & Associated Spp. Desert Shrub - *Haplopappus nuttallii, Eriogonum corymbosum, Bolophuta ligulata, Artemisia pygmaea, Chamaechaenactis scaposa, Hymenoxyz acaulis, Cryptatha* sp. *Leucelene ericoides, Townsendia mensana, Juniperus osteosperma* and *Artemisia tridentata* grew cont.

Geologic Formation Parachute Creek of Green River Parent Rock shale - small ($5cm^2$) chips littering surface

Soil Texture pH 7.4

No. of Individuals 49 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling _____, Young 42, Mature 7, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition in fruit

Spatial size of population est. 10 x 25m

Viability of population (increasing, stable, decreasing) _____

Threats to survival (present & potential) _____

Other Notes: This population is the only one to date located below (2 - 3m) the Mahogany zone. Few additional scattered plants found in center of Sec. 8 at 1900m; west facing slope. Many similar hills in area; no others found with *Penstemon grahamii.*

Species continued: on top of the hill above *Penstemon.*

PEGR6-UN001

PEGR6-UN003

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN004

Date. 25,26 May, 25 June 1979

Species *Penstemon grahamii* Keck

Examiner(s) KMM, JSS, RJK, AMH

Location: BLM District Vernal State Utah County Uintah

Locality Name Seep Ridge Road - Bates Knoll

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 3,4,9: T 12S,R 22 E , Sec. 33 ¼ ¼

Elev. 1890 - 1980m Slope 0 - 5% Exposure all

Veg. Type & Associated Spp. Desert Shrub/Pinyon Juniper - *Cercocarpus montanus, Artemisia pygmaea, Yucca harrimaniae, Eriogonum ephedroides, E. corymbosum, Bolophyta ligulata , Forselesia meionandra, Lesquerella subumbellata, Haplopappus amerioides, Chamaechaemactis*

Geologic Formation Evacuation Creek of Green River Parent Rock white shale

Soil Texture clayey pH 7.2

No. of Individuals 300 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling _____, ~~Young~~ Rosette 90%, ~~Mature~~ Flowering 10%, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition flowering in May; in fruit in June

Spatial size of population Site A: 48 plants; 15 x 15m, Site B: est. 100 plants around circumferance of 2 knolls; 15-20 per knoll to south; few scattered to north, Site C: 13 plants, less than 10m^2.

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) gas pipeline and landing strip in area.

Other Notes: Plants found in shale shingled ledge or above and below in loose shale but not found in fine shale on top of hills. *Penstemon osterhoutii* on many knolls without *P. grahamii*.

Species cont.: *scaposa, Mirabilis alipes, , Juniperus osteosperma, Pinus edulis.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN005

Date. 11 June 26,28 May 1979

Species *Penstemon grahamii* Keck

Examiner(s) LMS, JSS, KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name Sunday School Reservoir and gas well

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. Sec. 22 ¼ NE,SE; Sec. 23 ¼ SW; Sec. 27 ¼NE¼NE ¼ ¼

Elev. 1950m (majority) Slope 0 - 30% Exposure all

Veg. Type & Associated Spp Pinyon-Juniper-*Pinus edulis, Juniperus osteosperma, Cryptantha barneby. Arenaria eastwoodii, Cirsium pulchellum, Eriogonum corymbosum, E. ephedroicdes, Bolophyta ligulata, Abronia pumila, Haplopappus nuttallii, Chamaechaenactis scaposa, Townsendia mensana.*

Geologic Formation Parachute Creek of Green River Parent Rock fine shale with tuffaceous rock litter (12 x 12 x 30cr

Soil Texture 5-8cm clay soil underlain by shale chips pH 7.2 - 7.6

No. of Individuals est. 800 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Rosette Young 30% , Flowering Mature 70% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition May: flowering and some in bud; June: in early seed.

Spatial size of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: High density groups noted by solid lines; Site A: @275; Site B: 120; Site C:86 Highest density groups also had largest individual plants (clumps of inflorescences); many with 4-8 stalks, maximum of 17.

PEGR6-UN004

For PEGR6-UN005
See CRBA6-UN003

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN006

Date. 8,10 June 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JSS, GRJ

Location: BLM District Vernal State Utah County Uintah

Locality Name Sunday School Canyon - west

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 22 Also: Sec. 21 ¼ NE SE ¼ SW ¼ SW

Elev. 1935 - 1965 Slope 0 - 15% Exposure all

Veg. Type & Associated Spp. Pinyon - Juniper - *Pinus edulis, Juniperus osteosperma, Eriogonum ephedroides, E. corymbosum, Cercocarpus montanus, Haplopappus nuttallii, Arenaria* sp., *Bolophyta ligulata, Brickellia oblongifolia, Hilaria jamesii, Townsendia* cont.

Geologic Formation Parachute Creek of Green River Parent Rock shale

Soil Texture little clayish soil with fine shale chips underlain by 4 x 4 cm chips. pH 7.6

No. of Individuals est. 650 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling _____, ~~Young~~ Rosette 45%, ~~Mature~~ Flowering 55%, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition in seed

Spatial size of population groups on knolls separated by sage

Viability of population (increasing, stable, decreasing) _____

Threats to survival (present & potential) _____

Other Notes: Several knolls with about 65 plants each; single lowest population size = 27 at the SE edge of the group. Several knolls with dead trees laying on surface.

Species Continued: *mensana, Forsellesia meionandra, Yucca harrimaniae, Chamaechaenactis scaposa, Lucelene* sp., *Artemisia pygmaea.*

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN007

Date. 8 June 1979

pecies *Penstemon grahamii* Keck Examiner(s) KMM, GRJ

ocation: BLM District Vernal State Utah County Uintah

ocality Name North of Jims Reservoir Canyon

SGS Quad Bates Knolls

egal Description: T 13S R 22E Sec. 29 ¼ S Central ¼

lev. 1975m Slope 0 - 20% Exposure NE, SW

eg. Type & Associated Spp. Pinyon - Juniper - *Pinus edulis, Juniperus osteosperma, Artemisia pygmaea, Eriogonum corymbosum, Cercocarpus montanus, Bolophyta ligulatam, Mirabilis alipes, Haplopappus nuttallii, Townsendia mensana, Eriogonum ephedroides,* cont.

eologic Formation Parachute Creek of Green River Parent Rock pinkish white shale

oil Texture pH 7.2

o. of Individuals 115 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

ge Class: Seedling , ~~Young~~ Rosette 20, ~~Mature~~ Flowering 95, Senescent

eproduction methods (outcrossing, selfing, etc.)

Pollinators if any

ispersal mechanisms

henological condition in seed

patial size of population @ 6 in each small drainage

iability of population (increasing, stable, decreasing) possibly increasing - plants in middle of road.

hreats to survival (present & potential) Jeep trail through center of population but not often travelled.

ther Notes: Most plants in small washes originating in P - J area.

Species Continued: *Forselesia meionandra, Chamaechaenactis scaposa.*

PEGR6-UN006

PEGR6-UN007

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN008

Date. 20 June 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JP

Location: BLM District Vernal State Utah County Uintah

Locality Name Seep Ridge - oil service road east

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 24 ¼ NW ¼ SW

Elev. 2000m Slope less than 20% Exposure SW

Veg. Type & Associated Spp. Pinyon - Juniper - *Pinus edulis, Juniperus osteosperma, Eriogonum ephedroides, Townsendia mensana, Cirsium pulchellum.*

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH

No. of Individuals est. 25 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , ~~Young~~ Rosette 80% , ~~Mature~~ Flowering 20% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition in seed

Spatial size of population scattered individuals; usually less than $10m^2$

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) adjacent area cleared for established well site; present small population in more danger from natural extinction than human destruction.

Other Notes: Plants scattered on 4 west facing hills; approximately 6 per hill. Other hills in area with *P. mucronatus*.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN009

Date. 11-12 June 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM,JSS

Location: BLM District Vernal & private State Utah County

Locality Name McCoy Reservoir #2 - Klondike Canyon

USGS Quad Bates Knolls

Legal Description: T 13S R 23E Sec. Sec. 18 ¼ SE, Sec. 19 ½ N; R 22E, Sec. 24 ¼ NE ¼ ¼

Elev. 1900 - 1950m Slope 0 - 60% Exposure all

Veg. Type & Associated Spp. Pinyon Juniper - *Pinus edulis, Juniperus osteosperma,*

hamaechaenactis scaposa, Cercocarpus montanus, Bolophyta ligulata:, Circium pulchellum,

tanleya sp., *Eriogonum corymbosum, Cryptantha barnebyi, E. ephedroides, Brickellia oblongifolia,*

Geologic Formation Parachute Creek of Green River Parent Rock Shale

Soil Texture pH 7.2

No. of Individuals est. 500 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , ~~Young~~ rosette 30% , ~~Mature~~ flowering 70% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering and in seed

Spatial size of population 5 - 30 plants per knoll except Site A: 175, Site B: 80

Viability of population (increasing, stable, decreasing) stable or perhaps increasing (large % letting seed)

Threats to survival (present & potential) grazing in area; jeep roads; private land

Other Notes: *Penstemon osterhoutii* found adjacent to *P. grahamii* in sec. 24 and sec. 19 ¼ NW. Population continues to east onto private land. Area "C" is similar in density and appearance to the area SW of jct. Buck Canyon and Seep Ridge Road.

Species continued: *Sphaeralcea*, sp., *Forselesia meionandra, Aquilegia barnebyi, Townsendia*

mensana, T. incana, Mirabilis alipes, *Hymenoxys acaulis, Oryzopsis hymenoides,*

Hilaria jamesii.

PEGR6-UN008

PEGR6-UN009

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN010

Date. 12 June 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Reservoir Canyon - SE drainage

USGS Quad Bates Knolls

Legal Description: T 13S R 23E Sec. 30 ½ S ¼ SE

Elev. 1950m Slope 0 - 15% Exposure north, east, south

Veg. Type & Associated Spp. Pinyon - Juniper - *Pinus edulis, Juniperus osteosperma, Eriogonum ephedroides, Artemisia pygmaea, Hilaria jamesii, Haplopappus nuttallii, Bolophyta ligulata*

Geologic Formation Evacuation Creek of Green River Parent Rock white shale

Soil Texture pH

No. of Individuals est. 200 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition in fruit; vegetative

Spatial size of population set of knolls about 400m long; plants scattered

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) jeep trail at base of hill

Other Notes: Plants on several levels of the knoll; 2 plants found on a separate knoll about .4 mile up (NW) the draw.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN011

Date. 6 June 1979

pecies *Penstemon grahamii* Keck Examiner(s) LMS, JSS

ocation: BLM District Private State Utah County Uintah

ocality Name McCook Ridge between Reservoir and Sweet Water Canyons

SGS Quad Cooper Canyon

egal Description: T 13S R 23E Sec. 15 ¼ SE ¼ SE

lev. 1900 m Slope Exposure

eg. Type & Associated Spp. Desert Shrub - *Bolophyta ligulata, Hilaria jamesii, Erigeron* sp.

eologic Formation Parachute Creek of Green River Parent Rock shale

oil Texture pH

o. of Individuals 7 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

ge Class: Seedling , ~~Young~~ Rosette 6 , ~~Mature~~ Flowering 1 , Senescent

eproduction methods (outcrossing, selfing, etc.)

Pollinators if any

ispersal mechanisms

henological condition flowering

patial size of population

iability of population (increasing, stable, decreasing)

reats to survival (present & potential)

ther Notes:

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN012

Date. 28 May 1979

Species *Penstemon grahamii* Keck Examiner(s) LMS

Location: BLM District Private Land State Utah County Uintah

Locality Name Agency Draw Oil Field

USGS Quad Agency Draw NE

Legal Description: T 13S R 21E Sec. 6 ¼ NW ¼ SW

Elev. 1810m Slope 35% Exposure south

Veg. Type & Associated Spp. Desert Shrub - *Eriogonum corymbosum, Camissonia lavandulaefolia, Foreselesia meionandra, Bolophyta ligulata., Hymenoxys acaulis, Chamaechaenactis scaposa, Oryzopsis hymenoides, Sphaeralcea coccinea, Cirsium pulchellum, Cryptantha barnebyi.*

Geologic Formation Parachute Creek of Green River Parent Rock shale

Soil Texture grey clay overlain by shale pH

No. of Individuals 6 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling 1, Young 2, Mature 3, Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition fruiting

Spatial size of population 15m x 20m

Viability of population (increasing, stable, decreasing) unstable due to limited size

Threats to survival (present & potential)

Other Notes: This population, like others, occurs just above Mahogany Zone

PEGR6-UN012

PEGR6-UN010

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN013

Date. 19 May 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, AMH, RJK

Location: BLM District Vernal State Utah County Uintah

Locality Name Sand Wash

USGS Quad Nutters Hole

Legal Description: T 11S R 18E Sec. 21 ¼ NE ¼ NE

Elev. 1450m Slope 40% Exposure West

Veg. Type & Associated Spp. Pinyon - Juniper - *Atriplex confertifolia, Phlox longifolia, Sclerocactus glaucus, Chrysothamnus* sp., *Eriogonum corymbosum, Oryzopsis hymenoides, Mirabilis alipes*

Geologic Formation Evacuation Creek of Green River Parent Rock shale

Soil Texture pH 7.6

No. of Individuals 1 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature X , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population

Viability of population (increasing, stable, decreasing) unstable unless others in area

Threats to survival (present & potential) intermittent jeep trail in area; natural extinction is a more likely danger.

Other Notes: Plant found in loose white shale with orange clast litter just above white "shingle" shale. Flowers very pale compared to Seep Ridge Road populations.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN014

Date. 14 May 1979

Species *Penstemon grahamii* Keck Examiner(s) LMS, JSS, JLE

Location: BLM District Vernal State Utah County Uintah

Locality Name north end of Long Bottom

USGS Quad Nutters Hole

Legal Description: T 10S R 18E Sec. 26 ¼ SE ¼ SW

Elev. 1430m Slope flat Exposure top of hill facing w.

Veg. Type & Associated Spp. Salt Desert Shrub - *Yucca harrimaniae, Tetradymia spinosa, Artiplex confertifolia, Eriogonum corymbosum, Phlox longifolia, Opuntia* sp., *Mirabilis alipes Ephedra* sp., *Cryptantha grahamii, Cryptantha* spp.

Geologic Formation Evacuation Creek of Green River Parent Rock pink-orange blocky clasts; tuffaceous

Soil Texture pH

No. of Individuals 1 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , ~~Mature~~ flowering 1 , Senescent

Reproduction methods (outcrossing, selfing, etc.) insect - assume other individuals available for interbredding Pollinators if any

Dispersal mechanisms

Phenological condition flowering, 2 florets dropped; fruit not yet formed.

Spatial size of population

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) threatened by virtue of limited breeding population.

Other Notes: found at top of outcrop harboring *Sclerocactus glaucus* plants. Flowers very pale relative to Seep Ridge Road populations.

PEGR6-UN013

PEGR6-UN014

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. PEGR6-UN015

Date. 26 May 1979

Species *Penstemon grahamii* Keck Examiner(s) KMM, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Jct. Seep Ridge and Kings Well Road

USGS Quad Bates Knolls

Legal Description: T 13S R 22E Sec. 10 ¼ NE,NW ¼ SW

Elev. 1960 - 1975m Slope Exposure south

Veg. Type & Associated Spp. Desert Shrub/Pinyon - Juniper - *Juniperus osteosperma, Pinus edulis, Eriogonum corymbosum, E. ephedroides, Lappula* sp., *Mirabilis alipes Cirsium pulchellum, Artemisia pygmaea, Bolophyta ligulata, Lesquerella subumbellata,* cont.

Geologic Formation Evacuation Creek of Green River Parent Rock shale with shale litter

Soil Texture clay pH 7.2

No. of Individuals 47 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , ~~Young~~ Rosette 35 , ~~Mature~~ Flowering 12 , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

ispersal mechanisms

henological condition flowering

patial size of population 3 small knolls (less than $20m^2$) with about 15 plants each

iability of population (increasing, stable, decreasing)

hreats to survival (present & potential)

ther Notes: large P-J and sage above population; knolls separated by sage lowlands. Plants on shale littered hillsides below small white shale bricky ledge. Scattered knolls of *P. grahamii* may continue to south.

Species continued: *Stanleya* sp., *Haplopappus amerioides, P. mucronatus.*

PEGR6-UN015

Sclerocactus glaucus

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN001

Date. 19 May 1979
1 June 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) KMM, AMH, RJK

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1430 - 1525m Slope 0 - 60% Exposure primarily S. & W.

Veg. Type & Associated Spp. Salt Desert Shrub - *Artemisia spinescens, Atriplex confertifolia, A. cuneata, Agropyron smithii, Mirabilis alipes, Tetradymia* sp, *Eriogonum inflatum, Opuntia* sp., *Allium textile, Chrysothamnus* sp.

Geologic Formation Green River Formation: Parachute Creek. Parent Rock shale sandstone

Soil Texture pH 7.4

No. of Individuals est. 400 (315 count) Site A: greater than 125; B: 82; C: 42; D. 66 (1-50 exact no.; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling , Young 25%(20-50%) Mature 70%(50-80%) , dead or Senescent less than 5% (80% of iv)

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition May - flowering; June - fruit, occasional flower

Spatial size of population habitats of decreasing density ii, i, iii, iv; @ site is a mixture of habitats.

Viability of population (increasing, stable, decreasing) population B: largest, healthiest individuals; several sprouts from certain individuals-may indicate recovery before death.

Threats to survival (present & potential)

Other Notes: Variable soil and surface appearance including i) bare, white shale hills (A & D); ii) broken ground of up to 60% slope with large rock (50-70cm length) litter (B); iii) 15% gently rolling terrain with small clast (15cm) litter (C), iv) flat sage-atriplex area with small clast litter (A).

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN002

Date. 9 June 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1420m Slope 0 - 15% Exposure north, south, west

Veg. Type & Associated Spp. Salt Desert Shrub - *Artemisia spinescens, Atriplex confertifolia, Eriogonum corymbosum, E. inflatum, Hilaria jamesii, Phlox muscoides, Opuntia* sp., *Phacelia* sp., *Mirabilis alipes, Sphaeralcea* sp.

Geologic Formation Parachute Ck. member of Green River Parent Rock shale, some orange brick clasts.

Soil Texture pH 7.2

No. of Individuals 6 counted est. less than 50 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature 6 , ~~Senescent~~ (dead) 4

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition in fruit

Spatial size of population several hundred square meters; very sparse population

Viability of population (increasing, stable, decreasing) appears decreasing

Threats to survival (present & potential)

Other Notes: Cacti found both with other vegetation and orange clasts littering the surface and on bare white shale hills.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN003

Date. 18,31 May 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) KMM, AMH, RJK

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1585 m Slope 0 - 15% Exposure west, east, north

Veg. Type & Associated Spp. Salt Desert Shrub - *Artemisia spinescens, Atriplex confertifolia, Hilaria jamesii, Oryzopsis hymenoides, Cryptantha grahamii, Allium textile, Eriogonum corymbosum, Tetradymia spinosa, Mirabilis alipes, Calochortus nuttallii, cont.*

Geologic Formation Evacuation Creek member of Green River Parent Rock white shale; some orange debris

Soil Texture Clayish pH 7.2

No. of Individuals 30 Site A: 15; Site B: 4; Site C: 11 (1-50 exact no.; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling , Young 30% , Mature 70% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition 18 May; Flowering; 31 May; in fruit

Spatial size of population 3 distinct groups with widley scattered plants (several meters apart)

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential) jeep road through area (not used to date this year) but no exploration or drilling, etc. in area.

Other Notes: Cacti found both among other plants and brick-like clasts and also alone on bare grey shale hills. Probably more scattered plants in area.

Species Continued: *Sphaeralcea* sp., *Circium pulchellum, Ephedra* sp., *Opuntia* sp., *Eriogonum inflatum.*

ECGL-UN001

ECGL-UN003

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN004

Date. 18 May 1979

Species *Sclerocactus glaucus* (K. Schum, L. Benson) Examiner(s) KMM, AMH, RJK

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec.

Elev. 1585m Slope breakpoint of 0-30% Exposure south

Veg. Type & Associated Spp. Salt Desert Shrub - *Atriplex confertifolia, Eriogonum corymbosum, Mirabilis alipes*

Geologic Formation Evacuation Creek member of Green River Parent Rock White shale

Soil Texture pH

No. of Individuals count 5 est. less than 50 (1-50 exact no,; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling , Young 50% , Mature 50% , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition Most individuals in vegetative condition only, others in study area alread in flower. Seeds remaining from last season.

Spatial size of population Widely scattered along road.

Viability of population (increasing, stable, decreasing) unknown but no indication of increase

Threats to survival (present & potential) major threat is natural extinction of a very small population which is too small and scattered to be exploited commercially.

Other Notes: Cacti scattered on knolls above and below Wrinkles Road on loose white shale, often at edge of hill in orange brick-like clasts; 1 - 3 per knoll. Additional plants likely between two areas.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN005

Date. 9 June 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) LMS, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1550m Slope 30% Exposure

Veg. Type & Associated Spp. Desert Shrub - *Atriplex confertifolia, Xanthocephalum sarothrae, Yucca harrimaniae, Thelesperma subnuda, Bahia ourolepis, Hilaria jamesii, Phacelia corrugata.*

Geologic Formation Parachute Creek of Green River Parent Rock grey shale

Soil Texture clay overlain by shale pH

No. of Individuals 7 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young 1 , Mature 2 , Senescent 4

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition past flowering but no fruit on mature plants

Spatial size of population 100m x 60m

Viability of population (increasing, stable, decreasing) decreasing

Threats to survival (present & potential) drought - a number of dead plants were seen; probably due to 1977 drought.

Other Notes: Cacti below grey shale plates below red sandstone.

ECGL-UN004

ECGL-UN005

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL-UN006
14 May 1979
Date. 9 June 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) JLE, LMS, JSS, KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1430m Slope 0 - 40% Exposure all

Veg. Type & Associated Spp. Salt Desert Shrub - *Atriplex confertifolia, Eriogonum corymbosum, Yucca harrimaniae, Opuntia* spp., *Cryptantha grahamii, Phlox longifolia, Ephedra* spp., *Pensteman grahamii, Mirabilis alipes, Tetradymia* sp.

Geologic Formation Evacuation Creek of Green River Parent Rock Shale & sandstone

Soil Texture pH

No. of Individuals est. less than 100 (1-50 exact no,; 51-200 nearest 10; 200± nearest 50)

Age Class: Seedling less than 10% Young primarily, Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition in bud and flowering in May; fruit in June.

Spatial size of population Cacti sparsely scattered over bottomland - usually less than 3 pla per hill.

Viability of population (increasing, stable, decreasing) apparently increasing (number of youn

Threats to survival (present & potential) presently, area is accessible only by helicopter, riv or very difficult overland travel; no evidence of death from drought.

Other Notes: South end of bottomland:hills of brownish soil with alluvial clasts; north end f bottomland: whitish clay hills with pink-orange angular sandstone; Site A: (15 plants) n orange shingle outcrop. Total population size (based on few, low density plants located) may underestimated for this large area.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL - UN007

Date. 18 May 1979

pecies *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) KMM,RJK, AMH

ocation: BLM District Vernal State Utah County Uintah

ocality Name

SGS Quad

egal Description: T R Sec. ¼ ¼

lev. 1425m Slope 0 - 10% Exposure north , West

eg. Type & Associated Spp. Salt Desert Shrub - *Artemisia spinescens, Atriplex cuneata, A. nfertifolia, Phlox longifolia, Opuntia* spp., *Chrysothamnus* spp., *Hilaria jamesii, Oryzopsis menoides, Lappula* sp.

eologic Formation Upper section of Evacuation Creek member of Green River. Parent Rock Shale & sandstone

oil Texture fine sandy pH

o. of Individuals 26 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

ge Class: Seedling , Young X , Mature , Senescent

eproduction methods (outcrossing, selfing, etc.)

Pollinators if any

ispersal mechanisms

henological condition Flowering

patial size of population 15 m by 30 m around slope of hill.

iability of population (increasing, stable, decreasing) Probably increasing (young) but 15 miles north of other pops. east of river.

hreats to survival (present & potential) Jeep road cuts base of population. Gas pipeline above ground) crosses river here - road built for pipeline?

ther Notes: Ground surface littered with smooth, alluvial sandstone rocks (15cm diameter); hite shale outcrop below population; much additional suitable habitat found in area but thout cacti.

ECGL-UN006

ECGL-UN007

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. ECGL - UN008

Date. 16 May 1979

Species *Sclerocactus glaucus* (K. Schum) L. Benson Examiner(s) KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name

USGS Quad

Legal Description: T R Sec. ¼ ¼

Elev. 1770 m Slope less than 20% Exposure west

Veg. Type & Associated Spp. Desert Shrub - *Cercocarpus montanus, Forselesia meionandra*

Geologic Formation Evacuation Creek member Green River Parent Rock White shale

Soil Texture pH

No. of Individuals 1 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature with buds , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition flowering

Spatial size of population

Viability of population (increasing, stable, decreasing) only individual in area; old

Threats to survival (present & potential)

Other Notes: large cactus: 25 - 30cm tall, 15cm diameter

ECGL-UN008

Thelypodiopsis argillacea

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN001

Date. 14 May 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) LMS, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name NNE side of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 11S R 20E Sec. 26 ¼ NE & NW ¼ of ¼ NE

Elev. 1700 - 1730m Slope 50 - 60% Exposure W,N, some E along draws

Veg. Type & Associated Spp. Desert Shrub - *Ephedra torreyana, Eriogonum corymbosum, Pteryxia terebinthinia, Elymus salina, Phlox* sp.

Geologic Formation Green River below Uinta Parent Rock sandstone

Soil Texture sand pH 7.4

No. of Individuals 1050 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling est. 50, Young est. 200, Mature est. 800, Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any none observed

Dispersal mechanisms

Phenological condition bud, flower, and very early fruit

Spatial size of population 400m x 20m

Viability of population (increasing, stable, decreasing) stable

Threats to survival (present & potential) Obscure jeep road near population; may be old mineral exploration road.

Other Notes: 186 individuals from the eastern boundary of the population - top to bottom - to a line drawn from top to bottom through magnetic north, approximately 1600 m^2.

Note: Extreme slope and loose soil make investigating sites hazardous to population habitat stability.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN002

Date. 14 May 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) JLE, KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name NNE side of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 11S R 20E Sec. 23 ¼ SW ¼ SE

Elev. 1710m Slope 75-100% Exposure north, east

Veg. Type & Associated Spp. Salt Desert Shrub - *Tetradymia* sp., *Ephedra torreyana*, *Eriogonum corymbosum*, *Atriplex confertifolia*, *Elymus salina*, *Oryzopsis hymenoides*, *Leptodactylon pungens*, *Grayia brandegei*, *Pteryxia terebinthinia*, *Arabis* sp., *Cymopteris fendleri*.

Geologic Formation contact of Uinta and Green River Parent Rock pink sandstone over shale

Soil Texture fine sandy to silty pH 7.4

No. of Individuals 125 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling _____, Young 5%, Mature 95%, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition 5% vegetative, 45% in bud, 50% in flower

Spatial size of population 40m up slope x 70m across slope - 2800m^2

Viability of population (increasing, stable, decreasing) _____

Threats to survival (present & potential) _____

Other Notes: _____

THARX-UN001

THARX-UN002

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN003

Date. 14 May 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) JSS, LMS

Location: BLM District Vernal State Utah County Uintah

Locality Name NNE side of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 11S R 20S Sec. 23 ¼ SW ¼ of ¼ NE

Elev. 1700-1735m Slope 60 - 80% Exposure primarily N & W-east for short distance

Veg. Type & Associated Spp. Desert Shrub - *Ephedra torreyana - Artemisia nova, Elymus salina, Petradoria pumila, Eriogonum corymbosum, Amelanchier utahensis, Astragalus convalarius.*

Geologic Formation Green River Uinta contact area Parent Rock red-brown sandstone

Soil Texture sandy pH

No. of Individuals 190 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling 10, Young 60, tMature 120, Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition

Spatial size of population 20m x 100m

Viability of population (increasing, stable, decreasing) stable

Threats to survival (present & potential)

Other Notes: 82 individuals in 1256m2 from eastern boundary of population, upper limit to lower limit, to a line drawn upper limit to lower limit to magnetic north. 20% of those counted were under ledges, about equal % of young and old for total population.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN004

Date. 14 May 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) JLE, KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name NNE of Big Pack Mountain

USGS Quad Big Pack Mountain

Legal Description: T 11S R 20E Sec. 10 ¼SE ¼SE; Sec. 15 ¼SE ¼NE ¼ ¼

Elev. 1645 - 1700m Slope 80% Exposure A,B: north, C: west

Veg. Type & Associated Spp. Salt Desert Shrub - *Tetradymia* sp., *Ephedra torreyana*, *Eriogonum corymbosum*, *Atriplex confertifolia*, *Elymus salina*, *Oryzopsis hymenoides*, *Leptodactylon pungens*, *Grayia brandegei*, *Pteryzia terebinthinia*, *Arabis* sp., *Cymopteris* cont.

Geologic Formation interfingering of Uinta and Green River Parent Rock red sandstone

Soil Texture pH

No. of Individuals A: 1 + 3, B: 8 + 1, C: 7 (1-50 exact no.; 51-200 nearest 10; 200+ nearest 50)

Age Class: Seedling 20%, Young 80%, Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition young flowering

Spatial size of population 8 individuals in 2 x 4m area (B), others scattered over two hillsides.

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes:

Species continued: *fendleri*, *Amelanchier utahensis*, *Artemisia nova*.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN005

Date. 19 June 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) KMM JP

Location: BLM District Vernal State Utah County Uintah

Locality Name Broome Canyon

USGS Quad Big Pack Mountain SE

Legal Description: T 11S R 21E Sec. 18 ¼ s. central ¼

Elev. 1645 - 1670m Slope 40 - 70 % Exposure north also east

Veg. Type & Associated Spp. Salt Desert Shrub - *Atriplex confertifolia, A. cuneata, Artemisia sp. Eriogonum corymbosum, Agropyron smithii, Tetradymia spinosa, T. nuttallii, Cryptantha rollinsii Leptodactylon pungens* .

Geologic Formation interfingering of Uinta and Green River Parent Rock red sandstone, white shale

Soil Texture pH 7.2

No. of Individuals A: 50 B: 17 C: 10 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature few stems , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms siliques dehisce from base to apex scattering seeds

Phenological condition 70% with ripe fruit, 30% had not flowered but do not appear to be seedlings

Spatial size of population similar density in A & B; very scattered in C

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: Hills (including north facing ones) without *Thelypodiopsis* were much more densely vegetated than those supporting the plant. Many of the *Thelypodiopsis* plants emerged from beneath rocks or shrubs.

THARX-UN003

THARX-UN005

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN006

Date. 23 June 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) KMM, JP

Location: BLM District Vernal State Utah County Uintah

Locality Name Alger Pass cutoff

USGS Quad Nutters Hole

Legal Description: T 11S R 19S Sec. 17 ¼ SE ¼

Elev. 1650 - 1700m Slope 60 - 80% Exposure north, east, west

Veg. Type & Associated Spp. Desert Shrub - *Artemisia* sp., *Eriogonum corymbosum, Tetradymia nuttallii, Astragalus convallarius, Ephedra* sp., *Eriogonum* spp., *Penstemon* sp., *Agropyron smithii, Chrysothamnus* sp.

Geologic Formation interfingering of Uinta and Green River Parent Rock red sandstone, white shale

Soil Texture clayish to sandy pH 7.4

No. of Individuals less than 200 in area covered (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling _____, Young _____, Mature few stems, Senescent _____

Reproduction methods (outcrossing, selfing, etc.) _____

Pollinators if any _____

Dispersal mechanisms _____

Phenological condition with ripe fruit, beginning to dehisce

Spatial size of population generally lower density than population THARX-UN007

Viability of population (increasing, stable, decreasing) suitable habitat extends to section 19 and 20; inaccessible

Threats to survival (present & potential) _____

Other Notes: Substrate at this site was the most variable of all locations. Plants located in very rocky (25 x 25cm) sandstone and fine shale areas. Areas of white clay soil were heavily rilled. Plants found from small inlet washes near edge of main wash up to within 20m of thick sandstone cliff.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN007

Date. 9 June 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) KMM, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name hills above Hydes Bottom south of Kings Canyon

USGS Quad Nutters Hole

Legal Description: T 10S R 19E Sec. 32 ¼ SW and sec.31¼ NE

Elev. 1500 - 1550m Slope 60% Exposure north,east,northwest

Veg. Type & Associated Spp. Desert Shrub - *Tetradymia* sp., *Xanthocephalum sarothrae*, *Elymus salina*, *Ephedra torreyana*, *Atriplex cuneata*, *Cryptantha* sp.

Geologic Formation Green River - Uinta contact Parent Rock shale and sandstone

Soil Texture pH 7.6

No. of Individuals A:650 B:20+17 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young X , Mature , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition in fruit

Spatial size of population see below

Viability of population (increasing, stable, decreasing)

Threats to survival (present & potential)

Other Notes: Site A: on north facing slope: 165 counted in 2m strip along hillside; plants extended in less than 10m strip. Site B: 20 plants in 70 x 30m area.

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN008

Date. 30 May 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) KMM

Location: BLM District Vernal State Utah County Uintah

Locality Name slopes above Hydes Bottom

USGS Quad Nutters Hole

Legal Description: T 10S R 18S Sec. 36 ¼ SE ¼ NW

Elev. 1550m Slope 80% Exposure north, east

Veg. Type & Associated Spp. Salt Desert Shrub - *Atriplex cuneata, Artemisia spinescens, Agropyron smithii, Ephedra* sp., *Eriogonum corymbosum, Tetradymia spinosa, Artemisia* sp., *Amelanchier* sp.

Geologic Formation Green River at contact with Uinta Parent Rock pinkish shale

Soil Texture silty to clayish pH

No. of Individuals est. 550 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling , Young , Mature few stems , Senescent

Reproduction methods (outcrossing, selfing, etc.)

Pollinators if any

Dispersal mechanisms

Phenological condition 90% early fruit, 10% vegetative and flowering

Spatial size of population see below

Viability of population (increasing, stable, decreasing) appears to be most competitive area located; healthy, reproducing population

Threats to survival (present & potential)

Other Notes: (Population continues west onto east facing slope into most dense vegetation encountered for this species. Plants not enumerated on this slope, density appears similar.) Plants span 5 to 15m in band around slope; population counted (125) in approximately 3 x 250m band through area. Largest plants (over 30cm tall) near contact with Uinta Formation.

THARX-UN008

POPULATION/HABITAT DATA
FOR THREATENED-ENDANGERED AND SENSITIVE PLANTS

Population Code No. THARX-UN009

Date. 9 June 1979

Species *Thelypodiopsis argillacea* Welsh & Atwood Examiner(s) LMS, JSS

Location: BLM District Vernal State Utah County Uintah

Locality Name Hills SW of Hydes Bottom

USGS Quad Nutters Hole

Legal Description: T 10S R 18E Sec. 26 ¼ SE ¼

Elev. 1550m Slope Exposure

Veg. Type & Associated Spp. Desert Shrub - *Artemisia* sp., *Amelanchier* sp., *Elymus salina*, *Schoenocrambe linifolia*, *Castilleja chromosa*, *Kochia vestita*, *Eriogonum ovalifolium*, *Arabis pendulina*, *Astragalus chamaeleuce*,

Geologic Formation contact of Green River & Uinta Parent Rock red-brown sandstone

Soil Texture pH

No. of Individuals 70 (1-50 exact no,; 51-200 nearest 10; 200÷ nearest 50)

Age Class: Seedling few, Young 20, Mature 50, Senescent

Reproduction methods (outcrossing, selfing, etc.) apparently outcrossed - fly has been observed

Pollinators if any

Dispersal mechanisms

Phenological condition fruiting

Spatial size of population 40m x 15m

Viability of population (increasing, stable, decreasing) stable

Threats to survival (present & potential) very secluded; slope steep but stable

Other Notes:

Townsendia mensana

TOME2 Habitat

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